THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ROBERT F. MESERVE

Appeal No. 1997-4072
Application 08/226,010[1]

ON BRIEF

Before BARRETT, HECKER, and LALL, Administrative Patent Judges.

BARRETT, Administrative Patent Judge.

DECISION ON APPEAL

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[1] Application for patent filed April 11, 1994, entitled "Method For Producing Superconducting Cable And Cable Produced Thereby."

This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-7. Claim 9 has been canceled. Claims 8 and 10-12 have been withdrawn from consideration as a result of a restriction requirement.

We reverse.

BACKGROUND

The disclosed invention is directed to a method of making a superconductor cable having a nickel coating on the superconducting wire strands in the cable.

Claim 1 is reproduced below.

> 1. In a method for making superconductor cable, the steps comprising:
>
> (a) encasing a multiplicity of filaments of a superconductor alloy in a normally conducting metal matrix to form superconductor wire;
>
> (b) electroplating with nickel said superconductor wire to provide a nickel coating about the periphery thereof;
>
> (c) forming an elongated bundle of generally circular cross section from a multiplicity of strands of said electroplated superconductor wire; and
>
> (d) deforming and compacting said bundle of strands into a superconductor cable of generally polygonal cross section, said nickel coating on said strands substantially maintaining its integrity in said cable, and said strands exhibiting only negligible diffusion of nickel into the matrix metal of said

superconductor wire, said cable exhibiting relatively high interstrand resistance.

The Examiner relies on the following prior art:

Fujikura Cable Co., Ltd. (Fujikura) 60-205579 March 26, 1987
(Japanese Kokai patent application)

Kreilick, Niobium-Titanium Superconductors, reprinted from Metals Handbook, Vol. 2 (10th ed., October 1990), pp. 1043-58.

Claims 1-7 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as his invention.

Claims 1-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kreilick and Fujikura.

We refer to the Final Rejection (Paper No. 15) (pages referred to as "FR__") and the Examiner's Answer (Paper No. 20) (pages referred to as "EA__") for a statement of the Examiner's position and to the Appeal Brief (Paper No. 19) (pages referred to as "Br__") for a statement of Appellant's arguments thereagainst.

OPINION

Obviousness

The first difference is that claim 1 recites nickel electroplating a multi-filament wire strand. Fujikura discloses nickel electroplating the individual filaments in a wire; i.e., Fujikura does not disclose nickel coating the outside of the pipe 15 after its diameter has been reduced during manufacture. Kreilick discloses a plurality of filaments in a matrix that has pure copper surrounding each superconductor filament and a web of Cu-Ni in the middle in a honeycomb shape; i.e., Kreilick also does not disclose a nickel coating on the outside of a multi-filament wire strand.

We do not find where the Examiner addresses this difference. The only differences addressed by the Examiner are the thickness of the nickel coating and the steps of the electroplating process. While we guess that the Examiner may be thinking that it would have been obvious to replace the single superconductor filament in the copper pipe 11 in Fujikura with multiple filaments in a copper matrix, so that the nickel plating was on the outside of a multi-filament wire strand, this reasoning has not been expressed, nor has any motivation been presented for such a modification.

The second difference is that claim 1 calls for "only negligible diffusion of nickel into the matrix metal." Fujikura discloses that the wire undergoes heat treatment whereby "the Ni of the Ni layer diffuses into the copper thereby forming a shielding layer 17 made of Cu-Ni alloy with a cross-sectional network thicker than that of the Ni plating layer 13" (translation, p. 3); thus, there is significant diffusion of nickel in Fujikura. Kreilick discloses a web of copper-nickel alloy. It is not clear whether this web is formed from a nickel coating or some other technique, but clearly there is significant diffusion of nickel.

We do not find where the Examiner addresses this difference. Possibly, the Examiner does not address this limitation because the limitation has been rejected as indefinite. Since we conclude, infra, that the "negligible" limitation is not indefinite, the limitation must be addressed. Neither Fujikura nor Kreilick disclose that there is an intact layer of pure nickel between the wires as indicated by the fact that both have a copper-nickel layer of substantial thickness. The advantage of a nickel coating

is discussed in the first declaration of Arup K. Ghosh and Arthur F. Greene, who we find to be of at least ordinary skill in the art.

Accordingly, because the combination of references fails to demonstrate the obviousness of these two differences, the rejection of claims 1-7 is reversed.

Indefiniteness

The Examiner concludes that "only negligible diffusion of nickel into the matrix metal" is not clear because it is not known what constitutes "negligible diffusion" (FR2).

Appellant provides a second declaration by Ghosh and Greene in Exhibit A to the brief which states (para. 3): "The word 'negligible' is understood by anyone skilled in the art as not being capable of being detected by a Scanning Electron Microscope (SEM) at the thicknesses below ten (10) nanometers. Accordingly, the outside surface of the wire would have no Cu-Ni alloy formation."

The Examiner's Answer does not respond to the declaration.

We conclude that Appellant has proved that "negligible" has a meaning that is understood by those of ordinary skill

in the art. Accordingly, the rejection of claims 1-7 is reversed.

CONCLUSION

The rejection of claims 1-7 is reversed.

REVERSED

LEE E. BARRETT Administrative Patent Judge	)	
STUART N. HECKER Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
PARSHOTAM S. LALL Administrative Patent Judge	)	

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